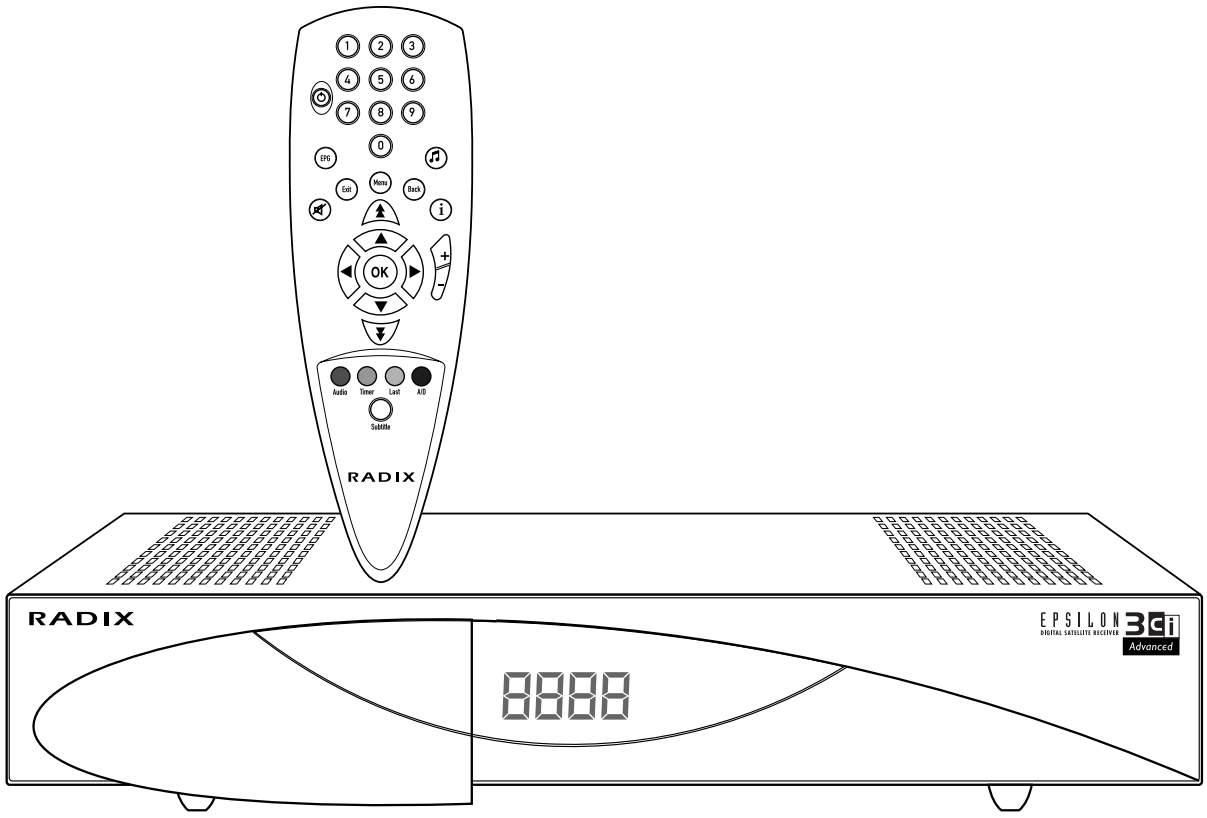
RADIX
TELECOMMUNICATION

Users Guide

EPSILON 3Ci DIGITAL SATELLITE RECEIVER *advanced*

GB



Read these instructions carefully before using this appliance. • Retain for future reference.
RADIX shall not be liable for damages resulting from improper use of this appliance.

RADIX Electronic Vertriebs-GmbH • D-61381 Friedrichsdorf • F.R. Germany

1 Introduction

Thank you for purchasing your RADIX digital satellite receiver. All RADIX products are manufactured to the highest standards at our ISO 9002 accredited manufacturing plants.

You naturally want to begin viewing your favourite programmes as quickly as possible - this is why we have designed the menu to fully meet your requirements. To ensure that you get to know your unit properly and that you can use and program all functions, please read these instruction carefully.

If it is necessary to return your receiver, please send it together with all accessories and in its original packaging. Include a copy of your invoice or receipt as well as a detailed description of the problem. Please ensure you affix adequate postage to the package or refer all repairs to an authorised retailer.

Thank you for purchasing your EPSILON 3 Ci advanced digital satellite receiver. In doing so you have chosen an appliance built for the future, allowing you to take advantage of numerous programmes and additional services such as electronic programme guides which will eventually replace conventional analogue transmissions.

We hope you enjoy using this product.

Print:

Users Guide EPSILON 3 Ci advanced

RADIX Electronic Vertriebs-GmbH • D-61381 Friedrichsdorf • F.R. Germany

© RADIX Electronic Vertriebs-GmbH, 2000

Subject to change without notice
Issue 09/2000, Version 1.0
Printed in Korea

Technical Documentation: Bartha Docuteam GmbH • D-64625 Bensheim

2 Contents

Chapter	Content	Page
1	Introduction	20
2	Contents	21
3	**Important Safety Notes**	**22**
4	Your Receiver and its Functions	23
4.1	Remote Control	23
4.2	Connecting the Antenna and Other Devices	24
5	Installing Your Receiver	25
6	Setting Up Your Receiver	26
7	Using Your Receiver	27
7.1	Switching your Receiver On	27
7.2	Selecting Channels	27
7.3	Volume Control / Mute Sound	27
7.4	Selecting the Audio Mode	28
7.5	Selecting the Audio Mode (incl. Digital)	28
7.6	Switching to an Analogue Receiver	28
8	Channel Lists and Information	29
8.1	Channel Lists	29
8.2	Channel Guides and Information on Channel Contents	30
8.2.1	Comprehensive Information on Channel Contents	30
8.2.2	Information on the Content of the Current Channel	30
9	Programming Your Receiver in the Main Menu	31
9.1	General Settings	31
9.2	Preference Lists	31
9.3	Channel Manager	32
9.3.1	Automatic Search	33
9.3.2	Manual Search	33
9.3.3	Programme Data Transfer	34
9.3.4	Reinstallation	34
9.3.5	Transponder Editor	34
9.3.6	Delete all Channels	34
9.4	Access Manager	34
9.5	Antenna Control	35
9.6	System Information	35
9.7	Common Interface Manager	36
10	Trouble Shooting	36
11	Recycling and Disposal	36
	Technical data	Appendix

GB

3 Important Safety Notes

This appliance is designed exclusively for receiving satellite signals as described in this guide. It must not be used for any other purpose. Keep the appliance out of reach of children. To avoid injury and to avoid damaging your receiver, please note the following:

WARNING:
Never remove the cover or any parts of it!
Do not allow liquids or objects to fall into the receiver!

DANGER:
Do not cover ventilation holes – risk of fire through overheating!

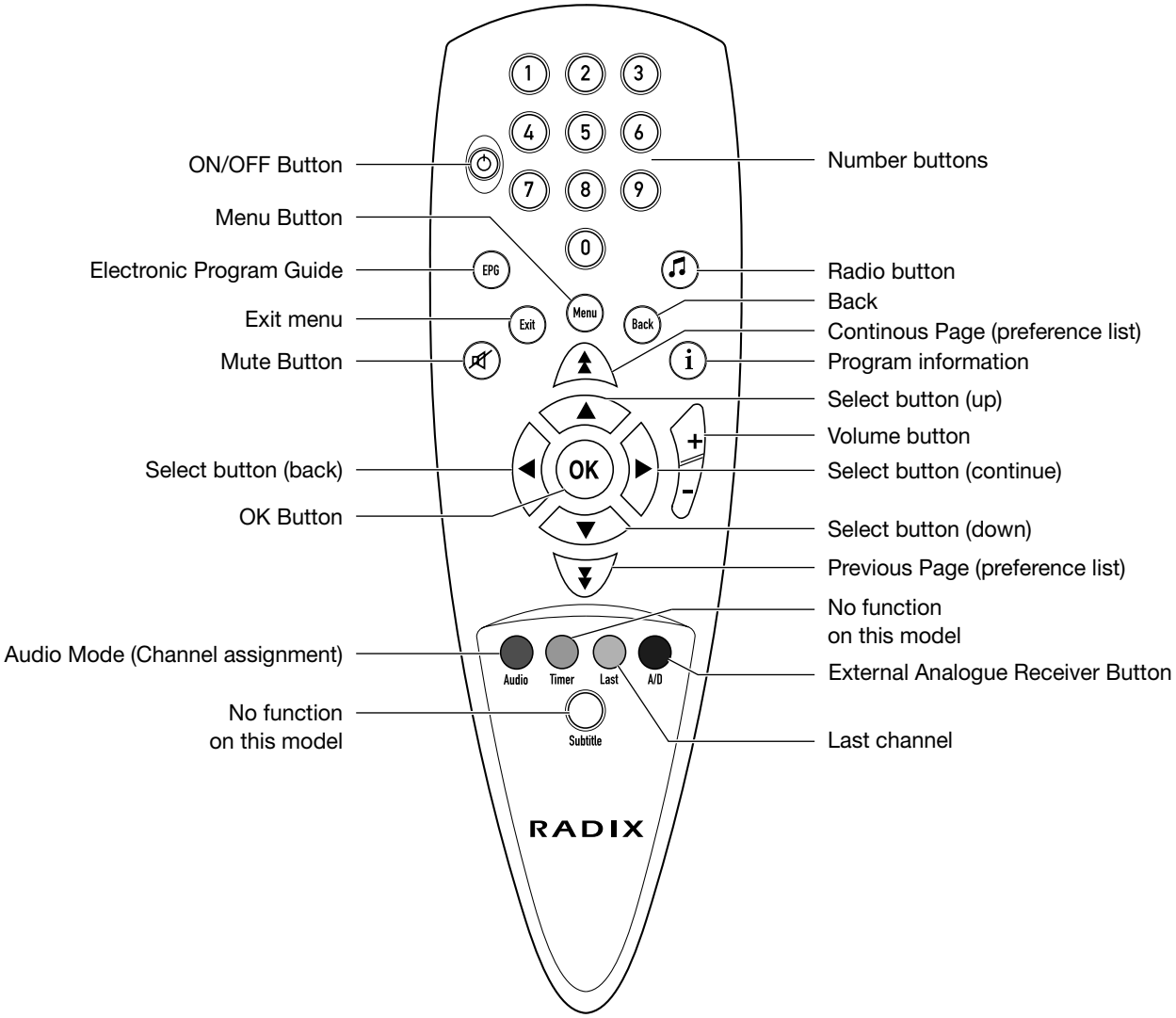
DANGER:
Only use original spare parts or professionally recommended spare parts. Failure to do so may result in damage or injury and will cancel the guarantee.

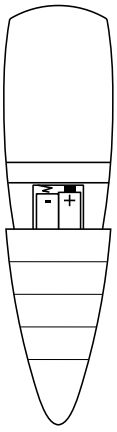
CAUTION:
Switch the appliance off during electrical storms or if it not used for long periods.
Disconnect the antenna cable in an electrical storm.

CAUTION:
To clean the receiver, lightly dampen a cloth with clean water
Do not use any chemicals or detergents!

4 Your Receiver and its Functions

4.1 Remote Control

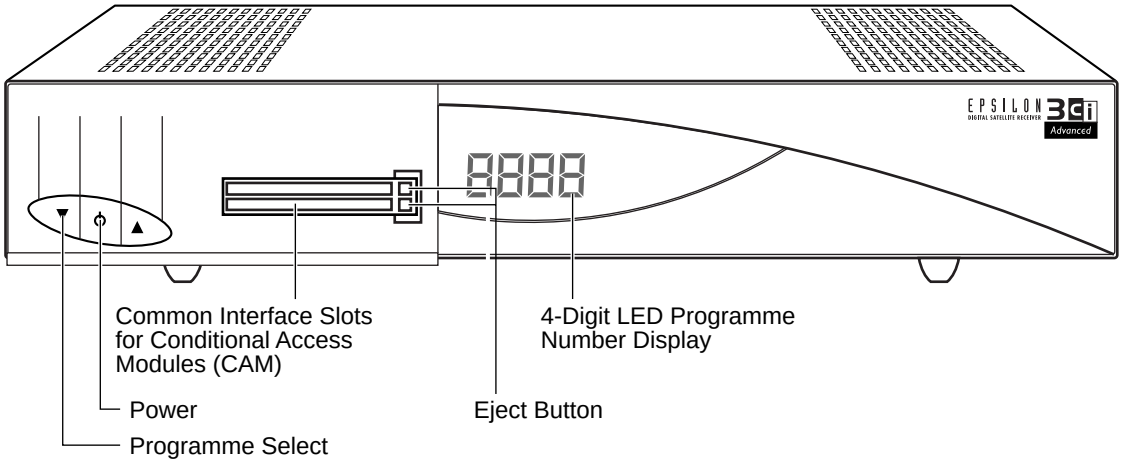




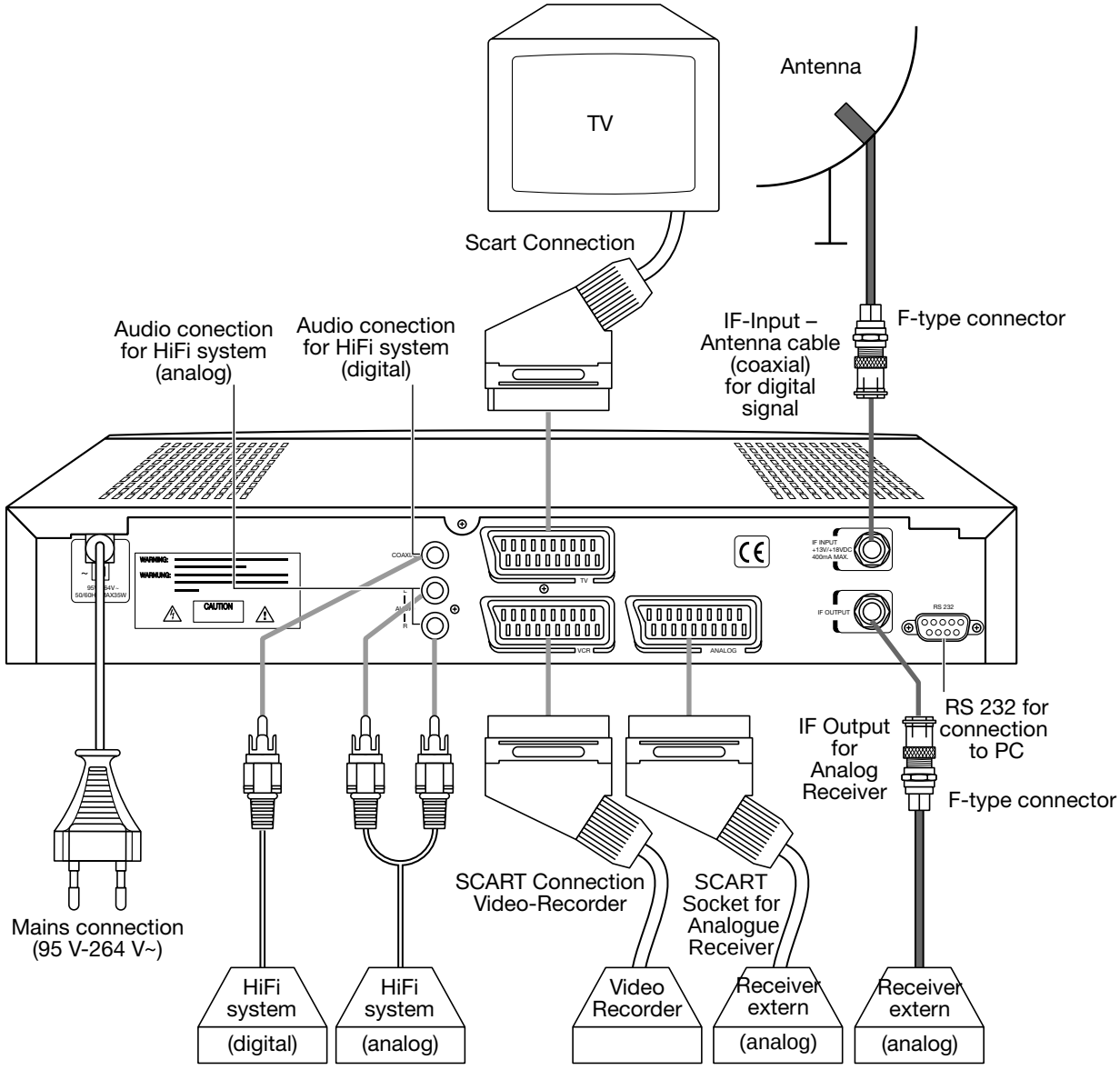
NOTE:
When inserting batteries into the remote control unit, make sure that the polarities match (+/-)!

GB

4.2 Connecting the Antenna and Other Devices



Front of Receiver



Rear of unit, connection to other devices

5 Installing Your Receiver

CAUTION:

Do not place the receiver near any heat sources or in strong sunlight.

Protect all cables from damage caused, for example, by sharp edges.

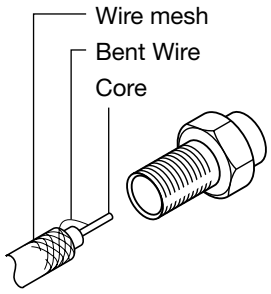
This appliance must only be used with a mains voltage of 230 V (± 10%), 50 Hz.

CAUTION:
Do not connect the receiver to the mains until you have correctly connected your VCR, TV and any other analogue receiver you may have to the mains.

- Use double shielded coaxial cable for connecting the LNB to the receiver.

GB

CAUTION:
When assembling the F-type connector, make sure that no part of the inner wire-mesh sheath touches the inner core (see diagram below). Failure to do so can cause a short-circuit and damage your receiver.



- Tighten the safety nut on the F-type connector by hand only. Do not over tighten!

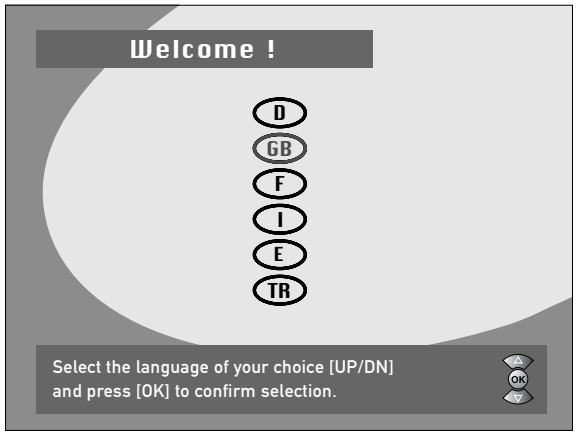
The receiver is pre-programmed at our factory to immediately provide you with hundreds of different channels. Of course you can change these channels or re-place them completely. In order to take advantage of all of the user guides such as programme, you will need to make a number of settings which are described in the following chapters.

6 Setting Up Your Receiver

• Switch your television on and set it to receiver-receive (AV or SCART input).

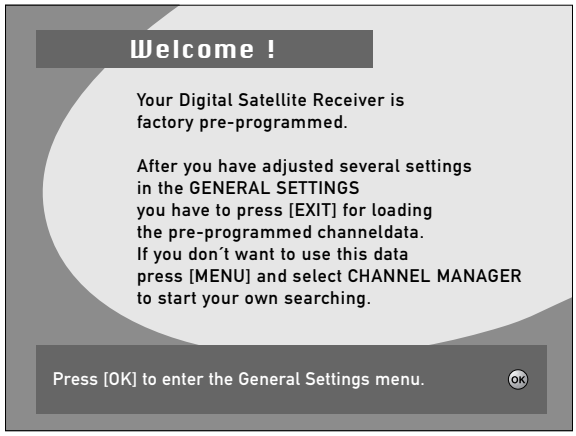
• Press the Power button on your receiver or on your remote control unit.

The ON message appears on the receivers display and the following screen appears.
The Main Menu appears on your TV screen:



• Select the language of your choice.
Instructions on what you need to do and which buttons on the remote control should be used are contained in the orange dialog box.

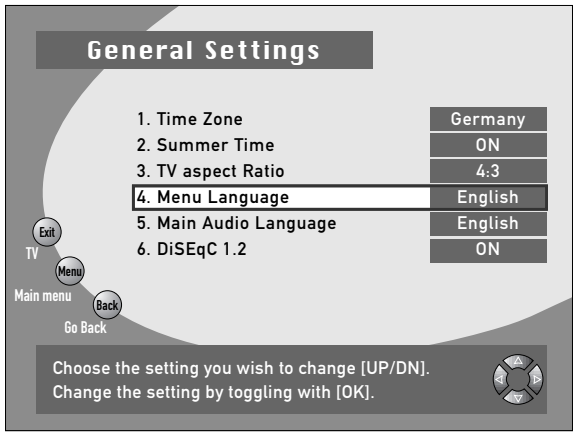
The following screen tells you how to proceed.


Welcome !
Your Digital Satellite Receiver is
factory pre-programmed.
After you have adjusted several settings
in the GENERAL SETTINGS
you have to press [EXIT] for loading
the pre-programmed channeldata.
If you don´t want to use this data
press [MENU] and select CHANNEL MANAGER
to start your own searching.
Press [OK] to enter the General Settings menu.
OK

General Settings

When you press OK, the “General Settings” menu appears.

The screen shows you which buttons you can use and which functions are available.
Example:
“BACK” – return to the previous menu.
“Exit” – return to the television picture.
“Menu” – return to the Main Menu.



• Enter your time zone by selecting a country in your time zone under section 1.

• Under item 2, select ON to choose Summer Time or OFF to choose Winter Time.

• Under item 3, specify the TV Aspect Ration of your television set.

• Under item 4, select the desired language.

• If your parabolic antenna is fitted with a control motor which can receive and convert the receivers control signal, select “6. DiSEqC 1.2” ON (this is described in more detail in section 9.5 Antenna Control).

When you have completed these settings, you are ready to begin viewing the pre-programmed channels. To do this you must first activate the factory presets:

- Press the Exit key to download the channel data. After a few moments you will receive a television programme.

If you do not want to use the factory presets, you can open the Main Menu by pressing the Menu key (see Section 9) and make all of the necessary changes yourself.

7 Using your Receiver

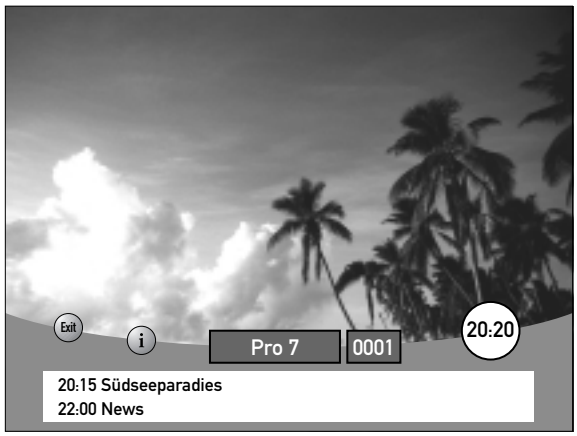
7.1 Switching your Receiver On

Press the ON/OFF button on either your receiver or the remote control unit to switch the receiver between on ("ON" or channel number on the display) and Standby modes (dot on display).

GB

7.2 Selecting a Channel

- Use the number keys to select the channel of your choice or select one from a preference list.



NOTE:
The channel number consists of four digits. You can also enter a one, two or three-digit number (for example, 1, 13, 113) and the receiver will display the channel in a few seconds.

- Use the UP button to move up one channel; use the DOWN button to move down one channel.

- Press the LAST button to return to the last channel you viewed.

Each time you change channels, the channel name and number, the time and the current programme as well as the following programme are displayed along with their times for a number of seconds. You can display this information at any time by pressing the INFORMATION button.

7.3 Volume Control / Mute Sound

- Use the volume buttons on the remote control to adjust the volume.

The on-screen display disappears after a few seconds if no changes have been made.

- To turn off the sound, press the MUTE button (see Section 4.1):

- Press the MUTE button again to restore the sound.

7.4 Listening to the Radio

In addition to television programmes, many broadcasters transmit their radio programmes in digital HIFI format.

• Press the RADIO key (see Section 4.1) to toggle between TV and Radio mode.

NOTE:
You can only toggle between television and radio modes when a complete list has been called up. The complete list of preset channels consists of a television section (known as “Video”) and a radio section.

• Use the > button to call up the complete video list.

• To switch to the complete radio list, press the radio button and select a broadcaster
Confirm your choice.

• Press the Radio key to switch from Radio to TV mode.

7.5 Selecting the Audio Mode (incl. Digital)

• Press the AUDIO button. Using the UP/DOWN buttons, select one of the languages (BL) provided by the broadcaster or select “AC-3”.

If you selected “AC-3”, the receiver will transmit a Dolby Digital signals through the digital output. Provided you have connected a suitable device, for example, a HiFi amplifier, you can use this improved sound quality.

• Press the > button and select one of the following options:

Stereo (L+R) – sound from right and left
Mono1 (L+L) – sound from left only
Mono1 (L+L) – sound from right only
Swap (R+L) – sound from right and left swapped

7.6 Switching to an Analogue Receiver

If you have an external analogue receiver connected, you can receive channels from it using your digital receiver

• Press the A/D key on your remote control to switch from digital to analogue mode.

The signal from your analogue receiver is carried through your digital receiver to you TV and VCR (if connected). ”Et” appears on the receiver display.
The analogue signal is still carried even if your digital receiver is in standby mode. You can then view or listen to the programs on the analogue receiver.

8 Programme Lists and Information

8.1 Preference Lists

Digital television offers you hundreds of channels and it's easy to lose track of your favourites. To help you find your favourite programmes quickly and easily, you can create preference lists.

Several hundred broadcasters are preset into the receiver at the factory - these are listed in the Complete Video List and the Complete Radio List. In addition to the complete lists, you can also create your own preference lists which you can name as you wish. You can program preference lists easily - the instructions for doing this are contained in section 9.2. To change from one list to another while watching a programme, do the following:

• Press the > button while watching a programme to call up the current channel list.

The name of the preference list of Complete Video List appears in the centre of the screen.
Press this button again to change to another list.

NOTE:
The programme guide (opened by pressing the EPG) and programme information (opened by pressing the INFO button) are only available for preference lists.

Using Preference Lists:

• Press the OK key while watching a programme:
(Press the button again to remove the onscreen display)

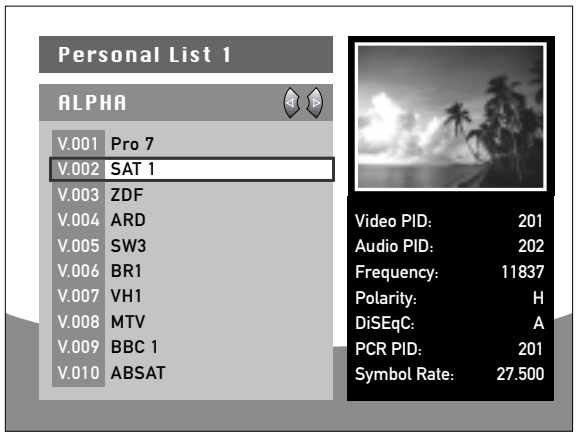
• Press the > button to change the programme list.

If one of the programme lists is displayed, the current programme is selected. If you use the UP/DOWN buttons to change the broadcaster, the programme and TV picture also change.

• Press the INFO key while watching a programme and programme list.

Technical information now appears relating to the current broadcaster and the TV screen returns to minimised view.

• Press the INFO key again to return to TV mode.



8.2 Channel Guides and Information on Channel Contents

NOTE:
The functions described under Section 8.2 are only available for previously configured Preference Lists.

NOTE:
Information on programme content is not broadcast by all TV broadcasters!

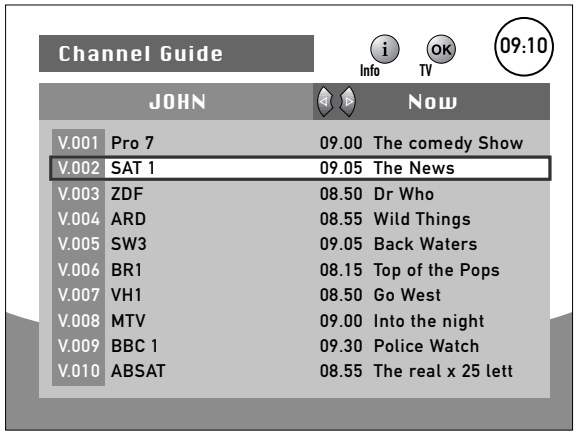
8.2.1 Comprehensive Information on Channel Contents

- Press the EPG key while watching a programme (EPG: Electronic Program Guide).

In the program guide you see a list containing the entered broadcasters as well as the names and start time of the current program.

- Press the INFO key to obtain more comprehensive information (see Diagram Section 7.2).

NOTE:
You can only get this comprehensive information from the currently selected broadcaster. To get information on programs by other broadcasters, you must first change broadcasters. (Not all broadcasters transmit this information).

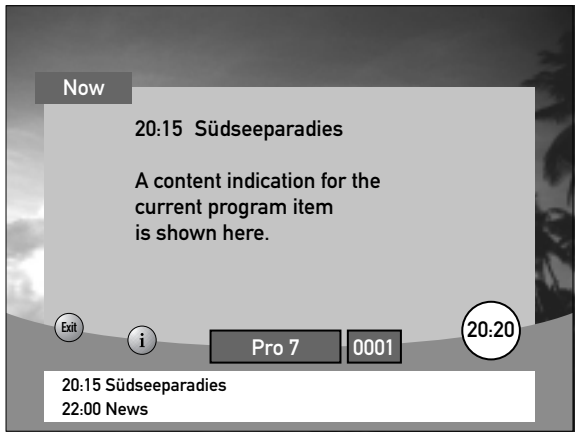

Channel Guide
Info
TV
09:10
JOHN
Now
V.001 Pro 7 09.00 The comedy Show
V.002 SAT 1 09.05 The News
V.003 ZDF 08.50 Dr Who
V.004 ARD 08.55 Wild Things
V.005 SW3 09.05 Back Waters
V.006 BR1 08.15 Top of the Pops
V.007 VH1 08.50 Go West
V.008 MTV 09.00 Into the night
V.009 BBC 1 09.30 Police Watch
V.010 ABSAT 08.55 The real x 25 lett

8.2.2 Information on the Content of the Current and Program and the Next Program

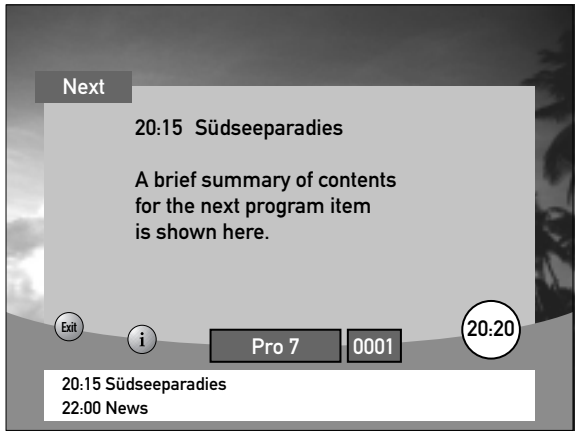
- Press the INFO key while watching a programme:

The program name and number, the time as well as the current and next programs are displayed along with start times on the screen (as described in Section 7.2).

- Press the INFO key to obtain more comprehensive information .

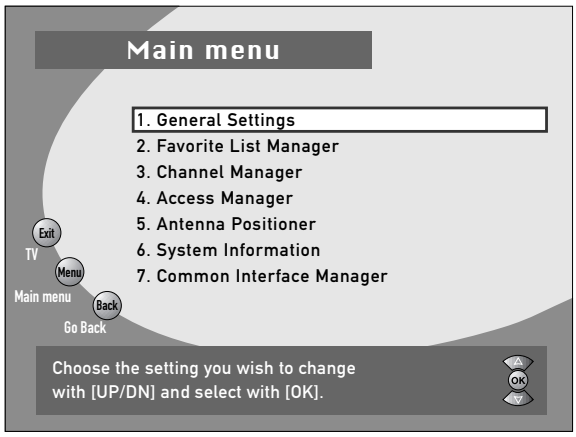


- Press the > key to obtain information this information for the next program.



9 Programming Your Receiver in the Main Menu

If you want to receive additional or other programs to those which were preset, you can programme the new broadcaster yourself. You can also use a variety of service functions ranging from antenna positioning to preference lists and access control.



GB

9.1 General Settings

You already used this menu item when you set up your receiver (Section 5).
You can, of course, change the settings at any time if, for example, you want to adapt the receiver to a new location.

NOTE:
When the changeover between Summer and Winter Time occurs, you must make the appropriate changes under menu item 2.

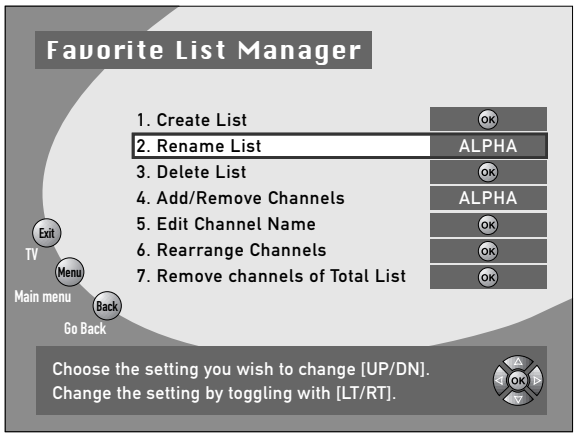
9.2 Preference Lists

You need to programme a personal list in order to use all of the available functions of your receiver.

Under item “1 Create List”, enter a name for the list. You should name the list according to the content - for example, “News” or “Sport” or according to the person who will be using the list - be creative!.

Menu item 2 allows you to change the names at any time.

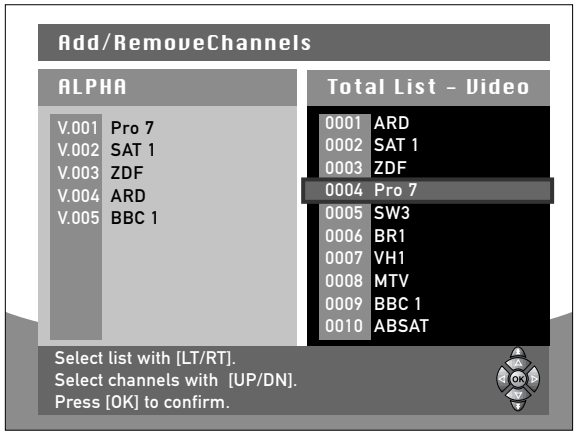
If you want to create an additional list but have already created three personal lists you must delete an existing list using menu item 3. If you only want to change individual broadcasters, select menu item 4.



Use “4 Add/Delete Program” to create your list.

- Use the UP/DOWN buttons to select the desired program in the complete video list (right) and confirm your choice with OK.

The program is now included in your personal list. It now has the current list number (three digit) and has a “V” to identify it as a TV program.



In order to include a radio station in your personal list, switch from the complete video list to the complete radio list using the RADIO button. The procedure is the same as above. Radio programs which have been included in your personal list are identified with an “R”.

If you want to delete a program from your list:

- Press the < button to access the personal list and use the UP/DOWN buttons to select the desired program. Press the OK button to confirm that you want to delete the program.

If the name of a station does not match you presets, you can change it using menu item 5 as often as you wish.

To change the order of the programs in a list, use menu item 6. To do this, select a program and move it to the new position. Confirm the move by pressing OK.

You can create lists with radio and TV programs either separate or mixed.

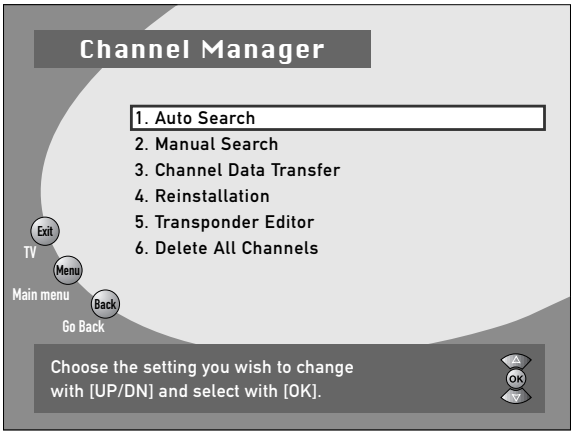
NOTE:
The RADIO button is temporarily locked while you are working in a program list.

To create space for a new broadcaster, you can move broadcasters you no longer need to the “recycle bin”. To do this, use “7 Delete Program from Complete List”.

9.3 Channel Manager

Using the program manager you can load new broadcasters into your receivers memory.

In order to make these settings you will need certain information which is available from your local specialist or in specialist magazines.

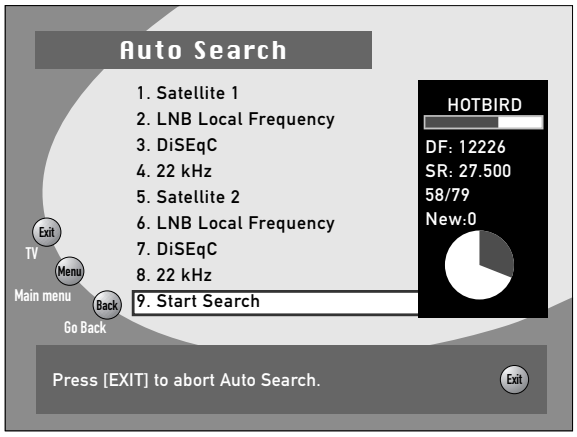


DiSEqc-Control and 22 kHz-Switch Signal

DiSEqC Settings	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	SAT A				SAT B				SAT C				SAT D			
Polarisation: Vertical/Horizontal	14 V	14 V	18 V	18 V	14 V	14 V	18 V	18 V	14 V	14 V	18 V	18 V	14 V	14 V	18V	18 V
LNB Band: 9,75/10,6 GHz	9,75	10,6	9,75	10,6	9,75	10,6	9,75	10,6	9,75	10,6	9,75	10,6	9,75	10,6	9,75	10,6
DiSEqC Sound	A	A	A	A	B	B	B	B	A	A	A	A	B	B	B	B
OPTION:	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2

If no DiSEqC controlled satellite system is used, the “upper/lower band” must be set to “manual”. This occurs when you activate/deactivate “22 kHz”.

9.3.1 Automatic Search



During automatic search, certain data is already pre-programmed. Standard satellite systems use Universal-LNBs with a local oscillator frequency of 9750 MHz for the lower band and 10600 MHz for the lower band. The basic setting for this receiver contains this data except the ASTRA and HOTBIRD satellites. You should only change these settings if your satellite system deviates from this or if you specifically want different settings.

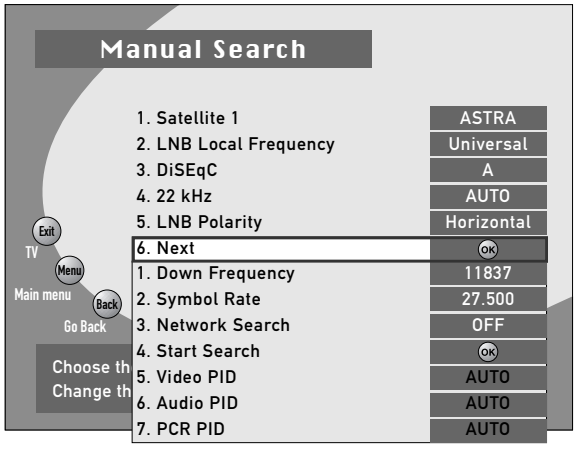
While the receiver is searching, an hourglass and a progress bar appear on which you can follow the frequency search. In addition, the following information is also displayed:

DF: - Satellite frequency
SR: - Symbol rate
.../... - Number of transponders found / possible
New: - Number of stored programmes

If the search fails, check and correct all settings.

GB

9.3.2 Manual Search



(This menu is presented in two sections which are accessed using the Continue and BACK buttons)

These settings should only be changed by qualified personnel or very advanced users.

Network Search:
Each transponder offers information for the complete satellite system (Requirement: The provider must keep the list as up-to-date as possible). When you enter a transponder and activate the network search, the receiver automatically searches all transponders which belong to the network. The definition of the network varies according to different satellite operators with the result that all channels on a satellite or only some are examined.

PID (Packed Identifier):
The PID number is the identification for video and audio signals in the digital data flow of DVB MPEG-2 signals.
Due to inadequate labelling, many programs may not be recognised during either automatic or manual searches. In such cases, you can enter the PID numbers to receive these programs.

9.3.3 Programme Data Transfer

This menu item is included to support specialist retailers. In this way a desired preset can be transferred from a master device to several slave devices. This pre-setting serves the common interests of a group of customers, for example regional or ethnic interests.

Master and slave receivers are linked together using as RS 232 interface.

NOTE:
All receiver functions are locked while the receiver is in data transfer mode. The transfer of data can only be interrupted by removing the mains cable.

9.3.4 Reinstallation

If you changed or deleted the preset data, you can reset the receiver to the factory settings. To do this you will need the PIN number (Section 9.4).

9.3.5 Transponder Editor

You can change, add or delete all satellite data. This function is intended only for servicing purposes and has no effect whatsoever on the operation of your receiver.

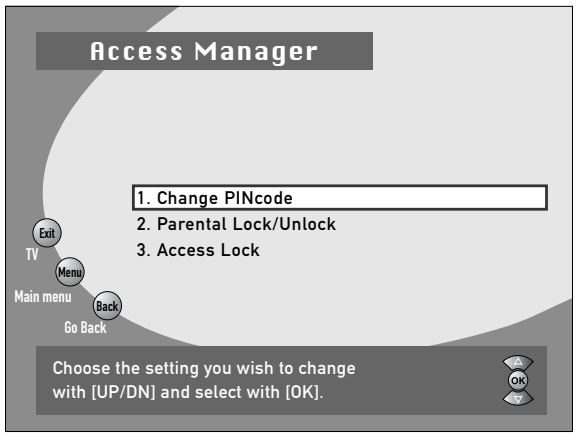
NOTE:
If you delete all of the data for a satellite, the satellite itself is also deleted.

9.3.6 Delete all Channels

CAUTION:
When you carry out this function (PIN number needed) all settings are deleted and you will need to reprogramme your receiver!

If you want to replace the entire program information, delete all programs. Your receiver now displays the “Welcome” menu as described in Section 6.

9.4 Access Manager



Several functions on your receiver can only be accessed using a PIN number – the factory default is **0 0 0 0**.

You can set up an access lock to prevent unauthorised access to the receiver.

- Under menu item 4, enter your PIN number and activate the access control.

When you do this, you will need to enter the PIN number each time you turn the receiver on.

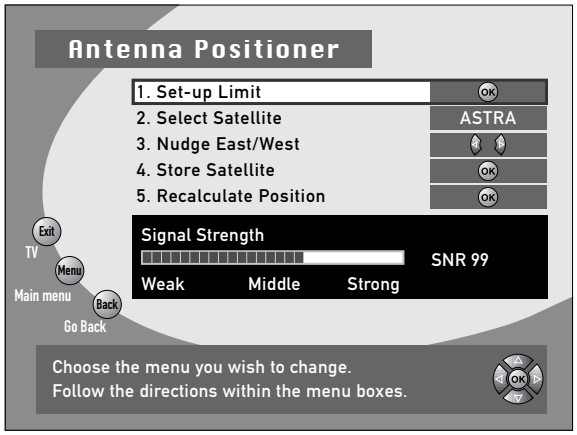
To prevent certain programs from being viewed you can set up a program lock in the same way as described above. When you do this you will need to enter the PIN number each time the program is changed.

If necessary you can change the PIN number using menu item 1.

NOTE:
In case of emergency: If you forget your PIN number, your local stockist can request a general PIN for your receiver from the factory.

9.5 Antenna Control

The following settings require highly specialised knowledge and skills. If in doubt, you should have this work carried out by an experienced professional.



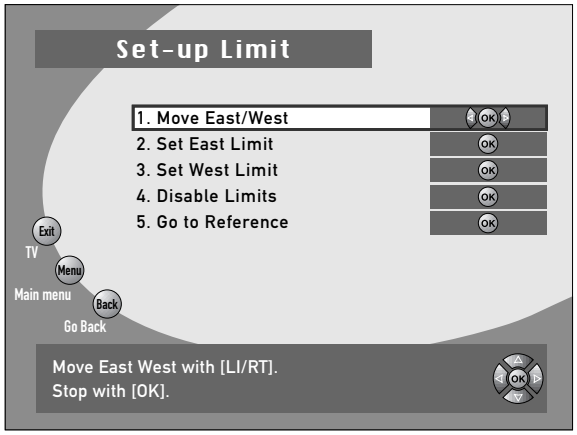
Requirements:
The parabolic antenna must feature a control motor which receives and uses the signal from the receiver. The mechanical settings for the antenna must be carried out correctly so that the satellites orbit can be properly tracked. This is the only way to ensure that the strongest possible signal is received.

In the “General Settings” menu, “6. DiSEqC” must be set to ON.

The satellite receiver “knows” the position of each satellite in relation to each other. As a result, it is sufficient to select and find just one satellite in the “Antenna Positioner” menu and set it to maximum strength and store it. All other known satellites are configured and stored using the calculate command.

You can of course search for new satellites – you must only use menu items 1-4.

In the submenu “1 Set Limits”, the physical limits are set within which the parabolic antenna can move without obstruction.



To do this, move the antenna as far east as possible and this position should be stored using “Set East Limit”. After this, the antenna moves westwards using menu item 1 and the west limit is set. If the structural surroundings change, you can delete the limits and recreate them to match the new surroundings.

Menu item “5 Reference Position” resets the antenna control motor to the delivery position (dead centre).

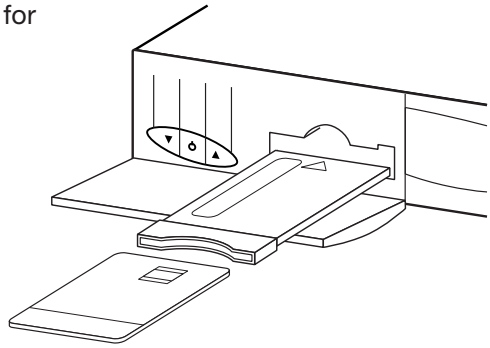
NOTE:
If your motor does not have a motor, you can use the Antenna positioner menu to check the signal strength.

9.6 System Information

Use this menu item to get manufacturers information on the software version for your receiver.

GB

9.7 Common Interface Manager



You can insert a maximum of two Common Interface Modules for decoding Pay-TV program packages.

- Insert the Ci-module into the slot with the coloured label facing upwards.
- Insert the Smartcard into the Ci-module with the gold chip facing upwards.

The Ci-Module is automatically initialised and the program package is decoded. In menu ”7. Common Interface Manager” you can call up the status of the inserted Ci module and Smartcard.

10 Trouble Shooting Your digital Receiver

NOTE:
Digital communications involve the simultaneous transfer and processing of large amounts of data. Changing channels may takes longer in comparison to analogue devices.

An hourglass appears on screen with the message “Please Wait” while the receiver changes channel.

Problem	Possible Causes	Solution
Noise, but screen menu available	Satellite system is faulty or incorrectly set up, faulty LNB	Check cables and antenna, set up antenna again, check LNB
	High levels of signal loss in cable	Replace cables or use a signal booster
	Faulty LNB	Replace LNB
	Faulty connection (Water/corrosion damage)	Repair connection
No stereo sound	Wrong cable connecting TV and receiver	Check SCART cable
Remote control does not respond	Batteries exhausted	Replace batteries
	Remote control not pointed at receiver	Hold remote control in correct position

11 Recycling and Disposal

Please dispose of the device, packaging such as polystyrene and all batteries in accordance with your local regulations and recycle wherever possible. Follow all relevant regulations and dispose of the materials at the correct locations. Consult the relevant regulations available from your local environmental protection agency or similar.

Technische Daten • Technical Data • Caractéristiques Techniques Datos Técnicos • Dati Tecnici • Teknik Özellikler

Tuner

IF Input Frequency	920 ~ 2150MHz
IF Loop through output	920 ~ 2150MHz
IF Bandwidth	8/55MHz, automatical switching according to symbol rate
Input Impedance	75ohms
Input Signal level	-65dbm ~ -25dbm
LNB Polarization	
Switching Voltage	13/18VDC@max400mA, Short Circuit Protection
Band Switching	22KHz Tone
I/Q Output	Unbalanced Output, Controlled by AGC Input

Front-End Demodulator

Demodulation Capacity	QPSK Demodulation
Symbol Rate	1 ~ 45Msps
Viterbi Decoding Rate	1/2, 2/3, 3/4, 5/6, 7/8, 8/9
Reed Solomon Decoding	FEC : 204, 188, t=8

Transport Demultiplexer

Demultiplex	According to ISO/IEC 13818-1
Max. Input Stream	60MHz(Serial)/7.5MHz(Parallel)
PID Handling Capability	32 PID
SI Filtering	According to DVB-SI spec (ETS 300 468)

Video Decoding Parameters

Video Decoding	ISO/IEC 13818-2 MP@ML
Aspect Ratio	4:3, 16:9, Pan&Scan, LetterBox
Resolution	Max.720 x576

Audio Decoding Parameters

Audio Decoding	ISO/IEC 13818-3 Layer I & II
Operating Mode	Mono, Dual, Stereo, Joint Stereo
Sampling Frequency	32, 44.1, 48KHz
Digital Audio	Dolby AC-3

Baseband Video/Audio Output

Video Output Impedance	75ohms
Video Output Level	1Vp_p
Audio Output Impedance	600ohms Unbalanced
Audio Output level	3.0Vp_p With Volume Control
Digital Audio Output level	0.5Vp_p

Microprocessor and Main Memories

Microprocessor Type	MC68340-16(16MHz)
Processing Rate	4.7MIPS
Flash ROM (for program memory)	1Mbytes(512K x 16)
DRAM	4Mbytes(1M x 16 x 2)
Flash ROM(for data memory)	1Mbytes(512K x 16)

Data Service Port

Connector	9 Pin D-Female Type
Protocol	RS-232 Asynch
Data Rate	Max 115200 bps

Front Panel

4 Digits LED Display	Channel Numbers Display
3 Buttons	Power, Down, Up
IR Sensor	38KHz

Rear Panel

IF Input	F-Female Type
IF Loop through output	F-Female Type
Cinch Output	AUDIO(Left, Right, Digital)
2SCART Output	1TV, 1VCR
RS232 Serial Port	9 Pin D-Female Type
Power Cord	Europe Flexible Cord

Remote Control Unit

Type	IR (Carrier Freq. 38KHz)
Battery	2 x 1.5V AA

General Data

Input Power Voltage	AC 95~264V, 50/60Hz
Power Consumption	Max 35Watts
Dimension(W x D x H)	377 x 240 x 69mm
Weight	2.5Kg
Operation Temperature	0 ~ 40 Deg.